Rotational Position Sensor, Kit Type, Hall Effect Technology

FEATURES

- Accurate linearity down to ± 0.5 %
- All electrical angles available up to 360°
- Extremely long life: greater than 100M cycles
- Model dedicated to all applications in harsh environments
- Delivered as a kit: 2 elements
- Ideally suited for external applications: industrial or off-road markets
- Sealing level up to: IP68

QUICK REFERENCE DATA	
Sensor type	Kit rotational, hall effect
Output type	Wires
Market appliance	Industrial
Dimensions	48 mm x 43 mm x 12 mm

ELECTRICAL SPECIFICATIONS	
PARAMETER	**STANDARD**
Supply voltage, V_{supply}	5 V ± 0.5 V with regulator = 8 V to 16 V
Output mode	Analog or PWM CW or CCW
Electrical output range, V_{out}	for V_{supply} 5 V: 5 % to 95 % V_{supply} ratiometric for V_{supply} < 11 V: output from 0 V to V_{sub} - 1 V for V_{supply} > 11 V: output from 0 V to 10 V max.
Electrical angle, Θ	any angle (1° to 360°)
Independent linearity	A= ± 1 % (V_{supply}) B= ± 0.5 % (V_{supply})
No load supply current, I_{supply}	< 16 mA single output < 32 mA redundant output
Over voltage protection - output enabled	for output (5 V): +20 V for output (10 V): 29 V
Reverse voltage protection - output disabled	for output (5 V): -10 V for output (10 V): -35 V
Temperature coefficient, $\Delta V_{out}/\Delta T$ (25 °C)	60 µV/°C typ.
Hysteresis	< 0.35°
Resolution	12 bits
Resistive load recommended	$R_{pull\text{-}down}$ or $R_{pull\text{-}up}$: V_{out} 5 V Min.: 1 kΩ Typ.: 10 kΩ
Capacitive load recommended	4.7 nF
Start up cycle	< 15 ms

MECHANICAL SPECIFICATIONS	
PARAMETER	
Mounting type	2 oblong holes
Housing	plastic
Output type	single output: cable 3 x 0.35 mm^2 redundant: cable 4 x 0.25 mm^2 length: 400 mm min.

For technical questions, contact: sferprecisionpot@vishay.com

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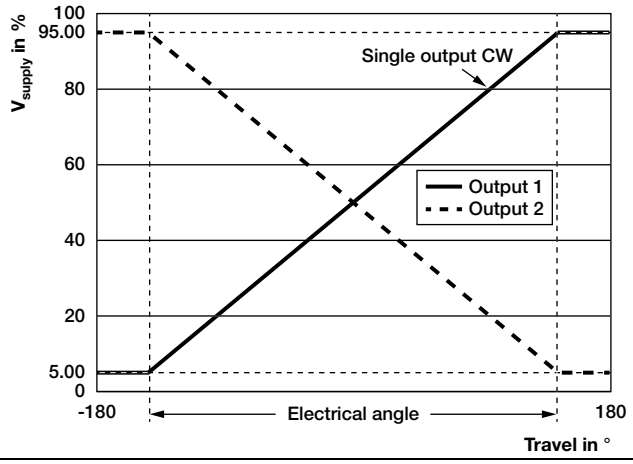
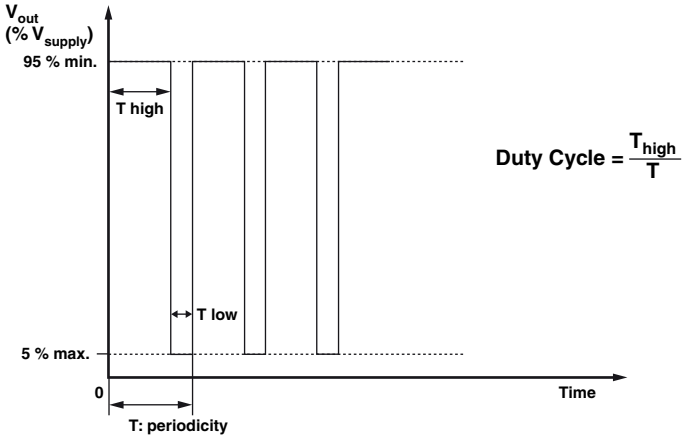
OUTPUT SPECIFICATIONS

For V_{supply} = 5 V
V_{out} 0.25 V → 4.75 V



V_{OUT} PWM



$$\text{Duty Cycle} = \frac{T_{high}}{T}$$

ENVIRONMENTAL SPECIFICATIONS

Life	unlimited mechanical lifetime
Rotation speed	120 rpm max.
Vibrations	20 *g*, 10 Hz to 2000 Hz EN60068-2-6
Shocks (1/2 sinus, 11 ms)	50 *g* EN60068-2-27
Operating temperature range	-45 °C; +105 °C
Storage temperature range	-45 °C; +105 °C
Sealing	IP67 (up to IP68)
Electrostatic discharges ESD	contact: ± 4 kV, air: ± 8 kV EN61000-4-2
Radiated electromagnetic emissions	30 MHz to 1GHz EN61000-6-4
Immunity to radiated RF electromagnetic fields	10 V/m EN61000-4-3
	10 V/m, 900 MHz, heating 200 Hz EN61000-6-2 and EN50204
Immunity to radiated Electromagnetic disturbances	200 V/m, 150 kHz to 1 GHz IEC 62132-2 part 2
Immunity to power frequency magnetic field	150 G (15 mT) external field, DC and 50 Hz

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability.

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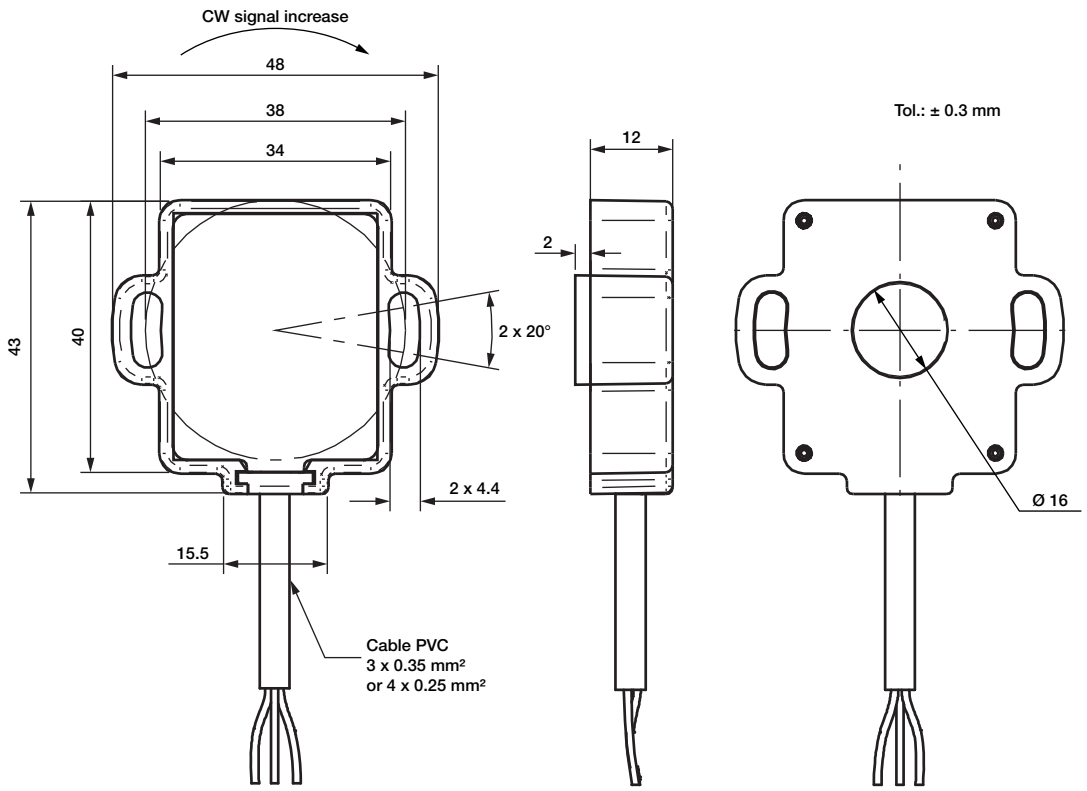
DIMENSIONS in millimeters



PINOUT	
Blue	signal 1
White	Gnd
Red	V+

PINOUT - Redundant version	
Blue	signal 1
White	Gnd
Red	V+
Yellow	signal 2

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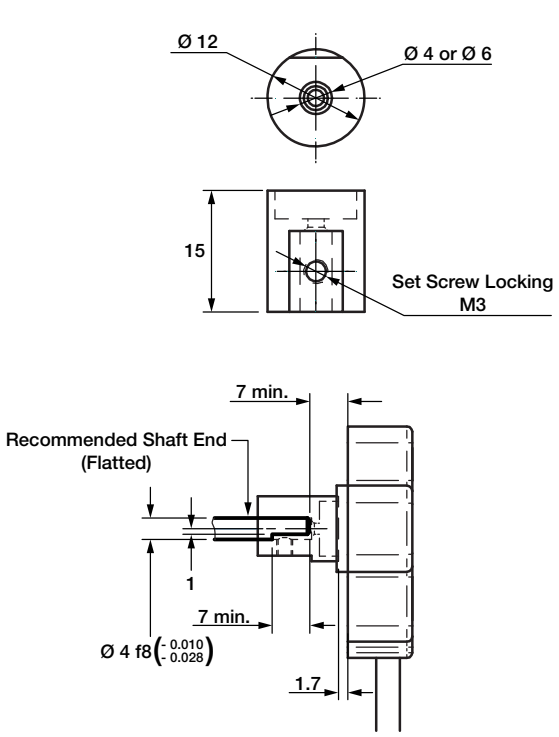
POSITION MARKERS

Position marker A (shaft Ø 4): ACAPTAXEW2566
Position marker B (shaft Ø 6): ACAPTAXEW2567

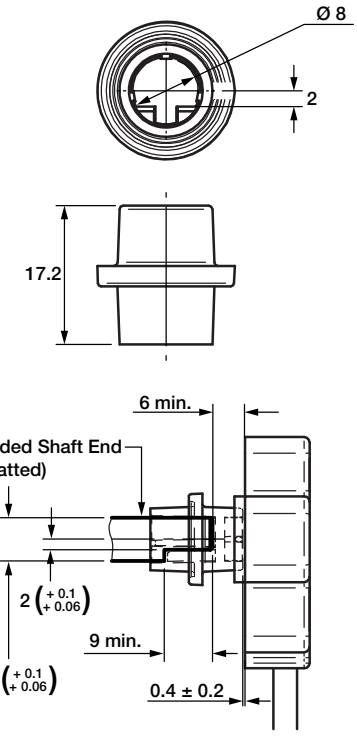
Metal Housing
for End Shaft Ø 4 or Ø 6 Flatted



Shaft reference position: signal 1 = 50 %

Position marker C: ACAPTAXEW2568

Plastic Housing
for End Shaft Ø 8 Flatted



Shaft reference position: signal 1 = 50 %

SAP PART NUMBERING

SMHE	1	A	A	180	C	11	A	xxxx
MODEL	FEATURES		LINEARITY	ANGLE	OUTPUT TYPE		OUTPUT SIGNAL	SPECIAL REQUEST
	1: single output **2**: redundant output	**A**: with positioning marker A **B**: with positioning marker B **C**: with positioning marker C **X**: without positioning marker **Z**: other (custom)	**A**: ± 1 % **B**: ± 0.5 %	**045**: 45° **090**: 90° **120**: 120° **180**: 180° **270**: 270° **360**: 360° **xxx**: any angle	**C**: cable **Z**: other	**11**: in = 5 V; out = 5 V **21**: in = 8 V to 16 V; out = 5 V **22**: in = 11 V to 16 V; out = 10 V **Z**: other	**A**: analog CW **B**: analog CCW **C**: PWM CW **D**: PWM CCW **E**: analog crossed **F**: PWM crossed **Z**: other (custom)	**0000**

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